## RICHMOND'S WATER WORKS.

History of Their Establishment and How They Have Grown Since 1830.

## HOW THE SUPPLY MAY BE INCREASED

Charles E. Bolling\_The



outstal of its proving successful. The urface of the water in the reservoir ras eight feet higher than any point in the city, and water was conducted to he city by means of a supply-main le water to the city by means of a supply-main le water to the city by means of a supply-main le water to the city by means of a supply-main le water to the city of a supply-main le water to the city four hours, or, according of the fen's calculations, furnish water or 4,000 families, computing the daily onsumption to be 100 gallons per family. From the terminus of the ten-inch as no nomerous distributing pipes of mail diameters were laid, and the hydrants put in at convenient points. The total cost of the works pumps, reservoir, pipes, etc.—exclusive of the dam and ore-bay, was \$76,800. The works were excepted by the city, February 17, 1832. In 1833, another water-wheel and pump of the same design and capacity was prested, and another eight-inch water outs half from the roums to the reser-From the terminus of the ten-inch main numerous distributing pipes of small diameters were laid, and five hydratis put in at convenient points. The total cost of the works—pumps reserved fore-bay, was 76.898. The works were accepted by the city, February 17, 182.

In 1823, another water-wheel and pump of the same design and capacity was accepted by the city. February 17, 182.

In 1823, another water wheel and pump of the same design and capacity was increased in 1824, the city bought the dam and fore-bay for the sum of 325,300; and five years afterwards replaced a portion of the wooden dam with one of stone. In 1824, the city bought the dam and fore-bay for the sum of 325,300; and five years afterwards replaced a portion of the wooden dam with one of stone. In 1825, the city bought the dam and fore-bay for the sum of 325,300; and five years afterwards replaced a portion of the wooden dam with one of stone. In 1825, the city bought the dam and fore-bay for the sum of 325,300; and five years afterwards replaced in 1824, the city of water becoming limited—the population wins 2., rew supply-main, twelve inches in diameter, and still food in two water-wheels and pumps of the same design and a little greater expands; and spill of the same design and a little greater expands; and spill of the same design and a little greater expands; and spill of the same design and a little greater expands; and spill of the same design and a little greater expands; to a spill of the same design and a little greater expands; to a spill of the same design and a little greater expands; to a spill of the same design and a little greater expands; to a spill of the same design and a little greater expands; to a spill of the same design and a little greater expands; to a spill of the same design and a little greater expands; to a spill of the same design and a little greater to a spill of the spill of the same design and a little greater to a spill of the spill of

The city at this time was rapidly ex-tending and being built up in the higher portion, differing in elevation very little from the site of the reservoir, and was supplied by mains hald along streets of widely different grades, greatly limiting the supply to those living on the high

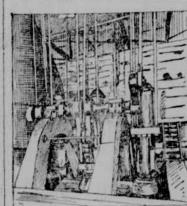


iron wastemains jess through the bank.

In the division bank there are constructed two chambers or wells. The influent chamber, near the south bank, is built of brick and stone, and the gates are so arranged that the water can be pumped into one or both compartments at the bott m. or allowed to rise and flow into either basin down stone steps set to the angle of the slope. From this chamber, two 20-linch cast-iron mains pass through the southern bank. The effluent chamber, near the northern bank, built of brick and stone, has three gates on each side (with screens) at different elevations opening into the two compartments. Two 30-linch mains pass from this chamber through the northern bank. The floors of the influent and effluent chambers are three and four feet above the bottom of the reservoir, thereby providing for a large settling space in each basin. On the outer slopes of both banks there are stone valits, in which are placed the valves.

present pumps.

After a careful examination of various competitive designs for pumps and water-wheels, a combination submitted by



wharfs about this city. In February, 1873, he accepted a position in the City Engineer's office, and from that time was employed as an assistant to the City Engineer until July, 1895. He was engaged in the supervision of all the various kinds of work that came under the charge of the City Engineer, and as street improvements of all kinds, sewer construction, etc., and the extensions and additions to the water works.

In 1874 and 1875, Mr. Bolling was employed as assistant engineer in the construction of the new reservoir and the laying of supply and pump mains for the same, for an additional supply of water for the city. From 1880 to 182, he was resident engineer in charge of the construction of the next and last addition to the water works, consisting of the deepening and widening of the raceway for water power, about seven miles long, building head-walls and dams and the new pump-house, and laying water mains. In July, 18%, he was elected to the position of Superintendent of the City Water Works, and has held it efer since. Mr. Bolling is a member of the American Water Works Association and the New England Water Works Association and the New England Water Works Association. Socially he is the peer of the very best citizens of Hichmond, and one of the leading members of the Commonwealth Club.

terday in clearing away the debris caused by the fire in the passement of E. B. Taylor's china store Friday, and agents for the various insurance companies in which the stock was insured were on the ground determining the loss. It was said at the store yesterday that no accurate estimate of the damage could be arrived at before Monday. A rough estimate places the loss at about \$5,000, upon which there is \$2,000 insurance.

While Mr. C. Winston, who is agent for the Stearns estate, was going through the cellar yesterday he fell into a hole in the flooring and received several painful cuts.

The water which was pumped into the cellar to drown out the blaze, has all run off by the accidental caving-in of the brick culvert.

The work of the Fire Department Friday was of the highest order, and as a further evidence of the fact that Richmond has one of the very best organizations in the country.

Our Stronghold is quality. Behind it we have impregnably entrenched ourselves in the fullest confidence of the people. Every nerve of this great commercial organization is wrought up to the highest pitch of duty—a live and active agent striving to better the best—firing ambition—stimulating enterprise—attaining success. Your steadfast loyalty is an incentive for us to crowd effort upon effort—achievement upon achievement. Having out-footed every entry in the race for trade—we're not sitting down to count the gain—not stopping to feast upon the fema of leadership—but redoubling our energy—carrying the requality of perfection—in stock and service—into the up-

fame of leadership-but redoubling our energy-carrying the pennant of perfection-in stock and service-into the untraveled realms of hope and planting it upon the topmost tower of reality.

These offerings are bargains not compulsory reductions but great big values that our enterprise puts before you at prices that command consideration.

Men's Business Sacks.

A lot of guaranteed all-wool 3-button Cutaway Sack Suits-made of a grade of Cheviot that tailors put into 415 suits.

It's a striish plaid patteru-brown effects-and the making and trimming is perfect in every detail.

Clay Fabric Suits. Single-breasted Sacks and Cutaway Frocks, made and lined equal to \$15 suits so d by others. Color, cloth, and fit guaranteed. Special price.

A Globe Cassimere.

\$5.00

Harris Cassimere Suits. 

Fall Overcoats.

Last of the lot of \$ 2.50 Trn Pop Coats that we've been selling at \$8.30. They're perfectly moneted—wide-stitched seams—3t inches long—Sink sleeve lining—that and flood body lining. Thoroughly tailored—They're what others sell for \$12.50. But our special

London Covert Coats.

A nobby new Gray and Brown mottled stripe—as stylish an effect as you'll find at any price. These are 3-button Curaway Sacas, with patch or plain pockets—\$16.50 won's buy better anywhere. Special price.

\*\*Special price\*\*

\*\*London Covert Coats.

Cut the fashionable length—and made of extra quality Tan Leather Cloth, strap seams, wide stitching, Italian Cloth body lining, silk sleeve lining. It's the nobbiest coat you'll see this season. Special price.

\*\*Special price\*\*\*

\*\*London Covert Coats.\*\*

Cut the fashionable length—and made of extra quality Tan Leather Cloth, strap seams, wide stitching, Italian Cloth body lining, silk sleeve lining. It's the nobbiest coat you'll see this season. Special price.

\*\*The content of the content of the coats of

No matter how much you want to spend you will find a complete assortment of both Fall Suits and Fall Overcoats here—to meet your idea of price Better garments they'll be, too, than are usually offered. We are sure there are styles to suit all of you. Sizes to fit all of you. The Suits run from \$7.50 to \$35. The Overcoats from \$7.50 to \$40. We guarantee satisfaction or the money's refunded.

Boys' Short Pants Suits.

It is pretty generally understood by the mothers of Richmond that what is best in Boys' Clothes is to be found here in unequaled variety. These are "leaders"

Brown and Gray Mixed All-wool Cheviot Short Pants Suits, with double-breasted jacket and double seat and knees in panta. Carefully mode to insure the greatest wear. You can't match 'em for \$7. Sizes 4 to 15 years.

Double-breasted Reefer Suits, made of all wool, fast color Pilet Cloth, broad sailor collar, with wide braid on it and around the cuffs, brass buttons and Middy Pants dong ones. It a novelty of ours—as pretty as a picture. Sizes 2 to 8 years. There's nothing to compare 'em with—for all that the price is only. Anti-Pluie Suits—all wool and water-proof. A patented fabric—treated scientifically—made up artistically in double-breasted Short Pants Suits of Plain Blue and Gray and Brown mixed Cheviots. Look like any good Suit-but they're water tight Just the thing for school. Nobody else has them. Sizes 4 to 15 years......

These are the bulwarks of our success in clothing the boys.

\$5 to \$20-and our guarantee keeps you company in every grade. Three times the assortment you'll find anywhere-more satisfaction at less price. Men's Furnishings.

One lot of Underwear that'll keep you warm and not cost what it's worth.
Gray Camel's Hair Underwear -Shirts with ribbed bottom, silk sitching, and pearl buttons. Drawers with taped seams. Fit all right worth 750. Bought by the case, we can sell it at. Nobby Neckwear.

At the Head of the Hat Trade-

And it's giving such values as these at such prices that puts us there Men's Black and Brown Deroys, shaped on all the new fail blocks, silk trimmed, and as good a hateas you can find any-where at \$2.50 and \$3. Our price

Boys' School Golfs-in plain Blue and Brown, or Mixed and Plaid Cheviote and Cassimeres, all lined with satin. Worth 75c. Our price....

Same Shoe Goodness

sumption, and if the waste was feet and the daily consumption brought even to a liberal quantity, say 60 gallons pecapita, the pumping capacity would in early five times the daily consumption.

SUPERINTENDENT CHAS. E. BOLLING.

The Loss About \$8,000 and Insurance \$3,000. A number of workmen were busy yes-

terday in clearing away the debris caus-

the new reservoir. There are three wheels and three pumps to each wheel, each set having a capacity of 12,000,000 gallons, or a total capacity of 12,000,000 gallons in twenty-four hours. At their maximum rate the wheels make 20 revolutions per minute, and require 285 cubic feet of water per second. The water necessary to run the pumps is discharged into the Richmond level of the canal, and is again used by several manufactories and mills in the city.

During the construction of the water power pumps and under a demand for immediate supply of water in the drought of 181, a Worthington Duplex Compound Steam Pump, with a daily capacity of 5,000,000 gallons, was erected. This was the pump used at the exhibition grounds in Philadelphia, in 1856, it is now rarely used, but kept in good order, as a reserve in the event of accident or damage to the canal by high freshes in the river. It will be seen from the above description, that the pumping machinery of Richmond is of various designs. At the upper station there are three vertical partial turbine wheels, with single acting vertical pamps, and a Worthington Duplex Compound Steam Pump. At the lower station there are six old-fashioned, low-breast water-wheels, working six double-acting horizontal piston pumps, and a Jonval turbine wheel, working two horizontal double-acting between sold. The pump-mains are so arranged or connected that one or both plants can be used to supply the higher reservoir, or the lower reservoir can be filled from the new reservoir.

The city distribution is divided into two services: The shigh service is supplied from the rew reservoir. The daily consumption of the high service is supplied from the rew reservoir. The daily consumption of the high service amounts to 9,000,000 gallons, the low service from the old reservoir. The daily consumption of the high service amounts to 9,000,000 gallons, the low service from the rew reservoir. The daily consumption of the high service amounts to 9,000,000 gallons, the low service from the rew reservoir. T

The Times for Young Couples.
From this time until Jaunary 1st, 1896, six-months' subscription to The Daily imes will be given absolutely tree of all arges to every nawly-magnitude.

SOCIAL AND OTHERWISE.

THE PROGRAM IN FASHIONABLE

Week-Coming Events-Personal Mention-Life on Church Hill.

The '95-56 social season, as well as the week, was introduced on Monday evening at the Woman's Club, II Frankin street, west. Tea, informality, and an illustration of the possiolitimes of physical culture ty Miss of Boston, made a delightful programme. A number of friends, not club members, were present, and praise of the new rooms was in every mouth.

Miss Annie Moore was hostess; Mrs. Thos. Moore poured tea. Others present were: Mrs. L. Lewis, Mrs. J. E. Roblinson, Mrs. Davenport, Miss Maria Blair, Miss Augusta Daniel, Mrs. Archer Anderson, Misses Blankenship, Ellett, Mary Mason Anderson, Madge Friedly, Mrs. J. R. V. Daniel, Mrs. N. M. Wilson, Mrs. John Duntop, and Mrs. W. P. De Saussure. The second tea of the season will be given on to-morrow (Monday), evening, from 5 to 3 o'clock.

The Misses Moore, west Franklin street, have returned to the city after a delightful summer at the Warm, where Mrs. Warner Moore still is.

Miss Annie Emple Shepgard, whose very critical illness for two weeks, has been a source of solicitude on the part of her many friends, is now much oetter.

Miss Sallie Thornton is rapidly recovering from the effects of a very successful operation upon her throat performed by Dr. Stuart McGuire. Miss Caroline Acelie Coleman has re-turned to the city.

Miss Carrie Ellett has also returned.

Rogers, Nellie Boykin, Kate Wailace, and the Evic Waiker.

Both Mr. Brockenbrough and Miss and the fashionable circles of Richmond that comment is a superfluity. Mr. Brockenbrough is the worthy bearer of a name always honored in the Old Dominion, and the comment is a superfluity.

David Ainsile & Company.

Miss Cooke is the charming eldest daughter of that gallant deceased soldier, General John R. Cooke, whose name is written indeliby in distinguished service to the Confederacy.

Miss Virginia Drewry leaves shortly for Memphis.

A subscription German made Thursday night delightud for a majority of the younger set. Mr. Frank Blankenship and other popular young gentlemen projectod the popular young gentlemen projector of the popular popular young sentlemen projector. The chaperones were: Mr. and Mrs. Bowless and William Mayo sharing the leadership in the dance.

The chaperones were: Mr. and Mrs. Tank Blankenship and Mrs. Robert Powers, Mr and Mrs. Brydon Tennant, Mr. and Mrs. And Mrs. Brydon Tennant, Mr. and Mrs. Brydon Tennant, Mr. and Mrs. And Mrs. Brydon Tennant, Mr. and Mrs. Brydon Tennant, Mr. and Mrs. Brydon Tennant, Mr. and Mrs. And Mrs. Brydon Tennant, Mr. and Mrs. Brydon Tennant, Mr. and Mrs. Brydon Tennant, Mr. and Mrs. And Mrs. Brydon Tennant, Mr. and Mrs. And Mrs. Brydon Tennant, Mr. and Mrs. Brydon Tennant, Mr. and Mrs. Grank Blankenship, St. George And Mr. and Mrs. Prank Blankenship, St. George And Mr. and Mrs. Prank Blankenship, St. George And Mr. and Mrs. Prank Blankenship, St. George And Mrs. Brydon Tennant, Prank Powers, Cham Pleasants, Iry Arrington, Frank Powers, Cham

Miss Lila Lane is the guest of the Misses Meade.

Miss Anastasia Howard has returned to the city.

Miss Mary Lewis has also returned.

Miss Mary Lewis has also returned.

Miss Mary Coles Carrington left for New York on Thursday, sailing thence for Berlin, and the perfection of her musical education under Barth, on Saturday. Throughout Wednesday, her home was the center of interest for all her set, and school-mates, teachers, and other friends called to give good-byes and present good wishes. An informal cup of chocolate was enjoyed by the party, who left with not less regret at Miss Carrington's absence for a year than confidence that she will bring back many honors on her head.

she will bring balls many thead.

Among those calling were Rev. Mr. and Mrs. Gravatt, Miss Margaret Lee, Madame Guillaume, Misses Fannie and Annie Guy, Mary Lucke, Mary and Fannie Archer, Bernard Harvey, Elise Ball, Susie Wellford, Marie Dunlop, Mary Domnan, Sara Harrison, Mary Tucker Carrington, and Carrie Lettwich. This is by no means a full list.

means a full list.

The Association for the Preservation of Virginia Antiquities has established so envisble a reputation for ability to plan and carry out enjoyable programmes that the second series of lectures under lis auspices to be delivered in thee hal of the House of Delegates, is anticipated with keen interest. The gentlemen who will celliver the lectures are Bishop A. M. Randolpt, Mr. Barton Wise, Mr. John P. McGuire, and Mr. J. Allston Cabell. To attempt to give either a letter of credit to the Richmond public would be an impertinence.

Mrs. Thomas Martin passed through Richmond last week en foute to Smithfield, where she will make a short visit before going to Washington for the wister.

ments at the "Caire," in that city, for the Congressional session.

ones, all them into execution is of the control of the tighteen into execution is of the control of the control

last week, where he was grounden at the Grinnan-Minor wedding.

Bishop Randolph and family have returned to Norfolk from "Eastern View," Fauquier.

Miss Sallie Tonnakins, recently the guest of Mrs. Joshua Peterkin, left last week for a brief visit toP ort Royal.

If the generous dichmond public wish to test the justice of the "Day Nursery's" modest appeals for interest, let the Richmond public pay a visit to the place. It has an eloquence about it that pen and ink, at their best have not. It is one of the very noblest and most needed of all the local charities, and deserves support, if any in the city does.

It is the noblest and most needed of the local charities, and deserves support, if any in the city does.

It is the noblest and most needed of the local charities, and deserves support, if any of them do. Anything that the instinct of motherhood can suggest, will be welcome—baby clothes, money, milk, fuel, etc.

CHURCH HILL.

A large contingent on the Hill is enjoying, in anticipation, a "Floral Anniversary," shortly to be given by one of the most popular couples of the section.

On Friday, Mrs. Virginius Harrison was reported not improved. Capt. and Mrs. John F. Mayer are vis-iting friends in Philadelphia and Wash-ington.

On Monday evening, the Fortnightly Whist Club had a delightful time at the residence of Mr. and Mrs. F. J. Craigle.

The St. John's Circle of King's Daughters, will meet at Mrs Craigle's to-morrow afternoon at 430 o'clock.

Sorrow is general at the death of Mrs. Josephine Ryland Lyne, a former resident of the Hill. Knew What to Bread.

Knew What to Bread.

Sol Slungshot—If we keep a sharp lookout we're safe on dat last job.
Sam Sandbas—Dat's all right. De gang's
pipin' de whole Detective Bureau.
Sol Slungshot (contemptuously)—Rats
on de Bureau! Keep yer eye peeled fer
reporters.—New York Herald.

"I would send you a kies, page," wrote
little Lucy, who was away on a visit.
"but I have not eaten onlose." "The

THE SOLDIERS' HOME.

An Effort to Secure a Further Annual Appropriation of \$10,000.

The following circular-letter, which is explanatory, has been mailed to all of the Confederate camps in the State:

Grand Camp Confederate Veterans,
Department of Virginia,
Alexandria, Va., Oct, 17, 1895.

Department of Virginia.

Alexandria, Va., Oct. 17, 1885.

Comrades:

A communication has been received from the Board of Visitors of Lee-Camp Soldiers' Home, "calling attention to the fact that the appropriation for the Soldiers' Home is not sufficient to maintain the present number of inmates or to admit new men." The appropriation is only for two hundred men, while the present number of inmates is two hundred and sixty-five, with a large number of applicants for admission, which it is impossible to take. Lee Camp has exhausted all of its funds, and, unfortunately, the private donations have dropped off very much this year. Therefore, it is necessary that some immediate action be taken in the matter.

At a meeting of the Grand Camp officers, a few days since, the following resolution was passed:

"Resolved, That the Grand Commander send to every camp in the State a letter, requesting co-operation in securing a further annual appropriation of 110,000 for six years, from the incoming Legislature, that amount having been announced by the managers of the Soldiers' Home as essential for the proper maintenance of that institution. All camps 18 thave been heard from urge this action."

lature, that amount having been announced by the managers of the Soldiers' Home as essential for the proper maintenance of that institution. All camps that have been heard from urge this action."

Comrades, I desire to call your special attention to the fact that many of our comrades, who, when Virginia called in 1861, patriotically responded, sound in body and limb, full of health, leaving the comforts of a happy home for the dangers of the battle-field and privations of camp life, who, when they returned, were disabled from loss of limb, or sick, broken-down, and out of health, with his home changed by his absence, possibly gone, are now in their old age and helplessness for the want of means, refuser admission to our Soldiers' Home. This should not be; some further prevision should be made by the State at whose call they responded and in whose defence they became the cripple or the invalid.

I therefore urge upon each and every

invalid.

I therefore urge upon each and every one of the camps in this department to take immediate and urgent action in this matter, so that the relief required shall be given at the earliest possible time.

WILLIAM A. SMOOT, Grand Com'dr, Grand Comp, C. V., Department of Virginia.

ALEXANDRIA CONTEST.

Chairman Ellyson Decides That the Call for a Convention To-Morrow is Regular.

Mr. Gardner L. Boothe, representing the Democratic Committees of Alexandria city and county; Mr. C. Bendheim, candidate for the House; Mr. James R. Calen, representing candidate Louis Burley, and Mr. May, representing candidates hisy and Lipscomb, called on Chairman Ellyson, of the State Democratic Committee, yesterday in reference to the Alexandria contest. Mr. Ellyson gave a written opinion to the effect that the called for the convention next Monday is entired by regular and that the committee had the right to determine the basis of representations.